

JPRS 76708

28 October 1980

# Japan Report

No. 109



FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available from Bell & Howell, Old Mansfield Road, Wooster, Ohio 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

28 October 1980

## JAPAN REPORT

No. 109

## CONTENTS

## ECONOMIC

Economic Planner on Consumer Prices (KYODO, 14 Oct 80) .....	1
Japan Hails Petrodollar Investment (Koji Nakamura; 8 DAYS, 4 Oct 80) .....	3
Second Interim Report on Aircraft Industry Policy (JPE AVIATION REPORT-WEEKLY, 24 Sep 80) .....	5
Aerospace Production To Dip in FY '80 (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	11
NAL To Incorporate Advanced Technology Into STOL Aircraft (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	12
Report Urges Promotion of Aerospace Machining Technology (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	13
Firm Commitments for Mitsubishi MU 300 Exceed 100 (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	15
Licensing Contracts on Airborne Equipment (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	16
Fokker Pushing Japanese on F-29 (JPE AVIATION REPORT-WEEKLY, 8 Oct 80) .....	17
R&D Subjects for SJAC Technical Center (JPE AVIATION REPORT-WEEKLY, 8 Oct 80) .....	19
Vacuum Furnace Order Increasing Aircraft Industry Sales (JPE AVIATION REPORT-WEEKLY, 8 Oct 80) .....	22
Matsuura Machinery Develops New MC for Aircraft Manufacture (JPE AVIATION REPORT-WEEKLY, 8 Oct 80) .....	24
<b>Briefs</b>	
Next Air Show	25

## MILITARY

MSDF Orders Five FY 1980 Funded Warships (JPE AVIATION REPORT-WEEKLY, 24 Sep 80) .....	26
British Naval Engine Equipment for MSDF (JPE AVIATION REPORT-WEEKLY, 24 Sep 80) .....	27
GSDF To Introduce 203MM HSP in FY 1981 (JPE AVIATION REPORT-WEEKLY, 24 Sep 80) .....	28
FY 1981 E-2C Program to Total ¥63 Billion (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	29
C-130H Transport Procurement, Deployment Plans (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	30
Fixed Wing ASW Aircraft To Be Standardized With P-3C (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	31
ASDF To Use C-1 Transport for ECM Training (JPE AVIATION REPORT-WEEKLY, 8 Oct 80) .....	32
GSDF Planning To Import Guided Projectiles in FY '81 (JPE AVIATION REPORT-WEEKLY, 8 Oct 80) .....	33
<b>Briefs</b>	
F-15 Flight Tests	34
Steady Team to U.S.	34

## SCIENCE AND TECHNOLOGY

Science, Technology Agency Announces JFY 1981 Budget (KAGAKU SHIMBUN, 5 Sep 80) .....	35
Research, Development Projects on Electronic Equipment in FY 1981 (JPE AVIATION REPORT-WEEKLY, 24 Sep 80) .....	38
Hitachi To Build Experimental FRP Boat (JPE AVIATION REPORT-WEEKLY, 24 Sep 80) .....	39
NEC Succeeds in Picturing SEASAT SAR Data (JPE AVIATION REPORT-WEEKLY, 1 Oct 80) .....	40
JDA/MITI Preparing for Start of MT-X Development (JPE AVIATION REPORT-WEEKLY, 8 Oct 80) .....	41
TR&DI To Fabricate Precision Guided Simulator in FY'81 (JPE AVIATION REPORT-WEEKLY, 8 Oct 80) .....	43

ECONOMIC

ECONOMIC PLANNER ON CONSUMER PRICES

0W140039 Tokyo KYODO in English 0018 GMT 14 Oct 80

[Text] Tokyo Oct 14 KYODO--Consumer prices, although showing signs of calming down, were still high when compared with last year's levels, director general Toshio Komoto of the Economic Planning Agency said Tuesday in announcing a monthly economic report.

He also pointed out that business was continuing to show signs of slowdown with personal spendings slackening and production and shipments declining.

The government announced a new comprehensive economic package on September 5 in which it switched course to one laying equal emphasis on both prices and business in steering the economy from the one laying stress only on prices.

Government economic policy planners are now watching the effects of the package.

But since the increase in consumer prices in September was higher than expected, they are being pressed with the need to take additional steps to curb inflation.

The government is planning to draw up a concrete plan during this month to cope with the continuing consumer price increases, EPA officials said.

The monthly report submitted by Komoto to a meeting of cabinet ministers concerned with economic affairs said:

--plant and equipment investments and exports were on the uptrend as the tempo of business expansion remained slow due to dull personal spendings. Production and shipments also were decreasing.

--wholesale prices tended to calm down as some commodity prices were falling. Consumer prices also were on the downtrend but remained still high when compared with the levels a year ago.

--to cope with such a situation, the government will enforce the eight-point package decided last month to stabilize prices and maintain the growth of the economy.

--as for the economic situation abroad, the decline in business activities in the U.S. is believed to have come to a halt. But business in West European countries generally was showing signs of declining. Although the upsurge in prices was slowing down, they still remained relatively high.

OSO: 4120

## JAPAN HAILS PETRODOLLAR INVESTMENT

London 8 DAYS in English 4 Oct 80 pp 30-31

[Article by Koji Nakamura]

## [Text]

AT LEAST 50 per cent of the estimated \$54bn worth of yen assets held by foreign sources is now believed to be petrodollars. The newly revealed figures, available from Japan's ministry of finance and international monetary sources, far exceed earlier estimates that the total amount of petrodollars in Japan was \$10bn. The more recent petrodollar performances in Japan indicate a substantial rise since July.

The sharp growth of yen assets, according to these sources, is attributed to active investments on the part of oil-producing countries in the stock and bond markets, as well as to inflows from pension funds in the US and the UK.

Such an active inflow of petrodollars into the stock and bond markets from oil-producing countries (mostly Middle Eastern), will generate considerable changes in the structure of the yen assets held in Japan. Before June, 45 per cent of assets were held in bank deposits, 20 per cent in the bond market, 15 per cent in the stock market and the rest in real estate and other concerns. Market sources now estimate that the stock and bond market shares will soon exceed bank shares.

At the end of August, monetary sources estimated that investments into securities and bonds left a surplus balance of \$27bn-\$28bn, which accounted for an increase of \$6bn since the turn of the year. The bulk of net increase was mostly due to Kuwait, the biggest investor in the stock market, Saudi Arabia — which had concentrated on the bond market rather than securities, but which has stepped up stock market operations of late — the UAE and Qatar and Iraq to a certain extent.

The attention of stock market operators has been attracted recently by the heavy volume of shares which these countries have started purchasing. The purchase unit per order is now ten million shares. They have bought stock in Nippon Steel, Tokyo Shibaura Electric (Toshiba) and Hitachi Limited, among others.

Apart from these investment performances, which have been mostly channelled through London securities dealers, one recent development left the stock market bewildered. This was the acquisition of 256.7m shares in 11 leading industrial firms by the Swiss Credit Bank (SCB), said to be the third largest bank in Switzerland. It is mainly engaged in the recycling of surplus petrodollars acquired by oil-producing countries. The bank has recently demanded 'transfer of ownership' of these shares.

While the share the bank holds is 'minimal' considering the total number of shares issued, the SCB is now the seventh largest shareholder of Hitachi Limited, with 55m shares or 2.1 per cent. It is thought that the bank might become the fourth largest holder, with 70m shares, when the current procedure for transfer of ownership of 15m newly acquired shares is completed.

The bank is also the tenth largest holder of Kubota Iron Works and Asahi Glass, with 35m shares (2.7 per cent) and 22m shares (2.5 per cent) respectively.

The 256m shares the SCB holds compares with the 156m shares which oil-producing countries, including non-Arab states, held in 1979 when total foreign investments in the stock market stood at 0.14 per cent of the total current

value of stocks issued by those listed at the stock exchanges of Japan as of April, 1980.

Some \$600m to \$800m of the \$1bn net increase in foreign investments into the stock market in August are believed to be Arab-based liquidities. Stock market sources said that the SCB's performance 'clearly endorses' recent reports from IMF sources that Arab oil-producing countries have 'reassessed' the Japanese stock market as a major outlet of surplus petrodollars (estimated at \$120bn in 1980) and have raised the 'Japan quota' from 2 or 3 per cent to 10 per cent.

Executives of the firms involved have welcomed the growing 'Arab presence' in their corporate stock structure. They commented that the situation signifies 'increasing Arab confidence in us', and expressed belief that the active Arab acquisition of their corporate shares was 'not aimed at either management participation or takeovers'. Foreign possession of Japanese corporate shares is legally limited to 25 per cent of the total.

Another sector where petrodollars have grown rapidly is the so-called 'free yen' accounts of foreign exchange banks. The \$4bn balance at the end of 1979 had increased by an estimated \$1.2bn by the end of August this year.

No less active is the so-called Euroyen market, where the estimated \$10bn balance at the end of 1979 has increased to \$14bn. The acquisition of Certificates of Deposits (CD) and Euroyen bonds have also contributed to the build-up of yen assets by non-residents.

The Japanese government recently dispatched a mission to the Gulf states to lay the basis for these countries to purchase

bonds, a selling effort aimed not only at Middle Eastern governments but also at private firms.

Already, the Bank of Tokyo, the Long Term Credit Bank of Japan and Sumitomo Bank have sold an estimated Japanese yen 100bn worth of national bonds to Iraq, Saudi Arabia, Kuwait and the UAE. Saudi Arabia is also purchasing \$200m worth of national bonds directly from the Bank of Japan each month.

For a country which is faced with a current account deficit of \$13bn in 1980 (\$10bn in 1979), and which will have to pay more than 60 per cent of the anticipated \$12bn trade receipts, the inflow of petrodollars is a major supply of foreign currency reserves, which have now regained the \$23bn level.

### **The following is a table of the SCB's holding of Japanese firms**

(Figures in parentheses are the share against the total shares issued)

	Million	%
Hitachi Limited	55	(2.1)
Nippon Steel	40	(0.6)
Kubota Iron Works	35	(2.7)
Mitsubishi Electric	23.5	(1.7)
Asahi Glass	22	(2.5)
Tokyo Shibaura Electric (Toshiba)	20	(0.9)
Sanyo Electric	16.2	(2.0)
Matsushita Electric	13	(1.1)
Nissan Motor	12	(0.8)
Mitsubishi Chemical	10	(1.0)
Fujitsu	10	(1.3)

ECONOMIC

## SECOND INTERIM REPORT ON AIRCRAFT INDUSTRY POLICY

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Sep 80 pp 1-6

[Text]

The Aircraft Division, Aircraft & Machinery Industry Council, MITI, has published its second intermediate report on Japan's aircraft industry policy. This was the basis for MITI's FY 1981 budget request submitted in August, in which the ministry requested research funds for the Y-XX medium transport development program and financing airlines' purchase of Boeing 767s.

A translation of the intermediate report follows:

The aircraft industry must play an important role in the national economy. However, aircraft development and marketing usually involve financial risks. This risk factor forces the government to take a major part in development of the industry.

Japan's aircraft industry policy should be based on the following recommendations:

### I. Aircraft Technology Research

Basic and practical research on aircraft technology promotes not only the technological level of the aircraft industry and its development but also the level of the nation's technology. The following points should constitute the base for research:

#### (1) Promotion of Practical Research

Japan's basic research on aircraft technology mainly at governmental institutes has made substantial progress; however, further promotion is necessary. As for practical

research for application of basic technology to aircraft development, Japan is behind the United States and other developed nations. Emphasis should be put on research for practical utilization of advanced technology.

The private sector should undertake such practical research because this type leads directly to aircraft development. However, the research costs so much and is a financial risk to the private sector, because application of research to actual aircraft development is not guaranteed. Therefore, the government should take the leadership in practical research while utilizing the private sector's ability.

SJAC's establishment of an advanced aircraft technology development center in FY 1980 is a favorable move. It will be desirable to expand the center in the future.

#### (2) Promotion of Test and Research Equipment

To step up practical research, wind tunnels and other equipment for tests and research should be increased. Equipment needed for an immediate increase includes numerical test simulators (large computers for numerical analysis), large transonic and other wind tunnels, operation simulators, large acoustic fatigue test systems, environmental test equipment for jet engines, and large elementary test systems.

Equipment for both basic and practical research should first be increased at the Science and Technology Agency's NAL. Private firms' joint test equipment would then be considered.

### 2. Development and Production of Commercial Aircraft

Since development, production and marketing of commercial aircraft are the foundation of the aircraft industry, the government and industry should promote the ongoing Y-X (Boeing 767) and XJB (RJ500) Anglo/Japanese aero engine programs while proceeding positively with new programs like the Y-XX project. Future aircraft development, production and marketing should be based on the following policies:

#### (a) Development, Production and Marketing Risks

Aircraft development, production and marketing risks are covered by semigovernmental companies in European countries and by private companies in the United States.

In Japan, the government has founded NAMCO jointly with private firms for the YS-11 program to cover the greater part of development, production and marketing risks. In the Y-X program, government loans are being given to CTDC to cover development risks. Production and marketing risks are the responsibility to private companies.

In future aircraft development, production and marketing programs, production and marketing risks should be covered by private companies. This would utilize the energy and efficiency of the private industry which has supported Japan's postwar economic growth. However, development risks, which are extremely high, should be shared by the government and private companies. The government's extension of loans and subsidies is desirable.

As for future programs proposed by the government, all development, production and marketing risks should be covered by the government.

#### (b) International Collaboration

International collaboration is being increasingly adopted for aircraft development. Examples include the Japan-U.S.-Italy Y-X (Boeing 767) program and the European Airbus project. Japan also should collaborate with other nations in future major programs so as to disperse technical and marketing risks and development funds and to secure markets.

#### (c) Central Organizations for Aircraft Programs

Aircraft development, production and marketing should be undertaken by individual aircraft manufacturers in principle. However, it is difficult for individual firms to carry out big projects such as the Y-X and XJB programs. Intercompany collaboration is necessary for such programs. In this case, companies must set up central organizations to coordinate different plans of individual firms. In international collaboration, such organizations are necessary to unify ideas of the entire Japanese aircraft industry.

Japan has so far set up NAMCO for the YS-11 development, production and marketing, and CTDC for the Y-X (767) development as such central organizations.

NAMCO was established in 1959 under the Aircraft Industry Promotion Law to develop, produce and market Japan's first commercial transport, the YS-11. Since YS-11 production

stopped in FY 1973, NAMCO has been engaged in supply and product support and other business. This support will have to be continued as YS-11s are expected to be operational over the next 15 years. However, its cumulative deficit had risen to slightly less than Y7,000 million at the end of FY 1979. Its income cannot cover expenses at present, and therefore, its deficit will continue to increase. Measures should be taken to cope with this situation as quickly as possible.

CTDC now undertakes development of the Y-X. However, some quarters have expressed doubts about its engagement in production of the aircraft. CTDC founders will have to reconsider the organization's business after production starts.

#### (d) Financial Source for Loans and Subsidies

The government must secure the source for large loans and subsidies in order to promote future commercial aircraft development. The source should be the general account because promotion of commercial aircraft development usually leads to technology spinoff in Japan's industry and eventually benefits everyone. Some recommend special accounts be set up for such special aircraft as flyingboats and STOL planes. This opinion should be further studied as establishment of new special accounts involves several problems.

#### (e) Government Loans and Subsidy Extension Formula

In aircraft development programs, design and schedules are frequently changed because of technical reasons and market trends. This results in a fluctuation of the amount of development funds needed. Therefore, a formula should be adopted for appropriating government loans and subsidies flexibly in response to actual progress.

### 3. Commercial Aircraft Trade

It is difficult for Japan to develop aircraft only for its domestic market. To make aircraft development programs profitable, Japan has to depend on foreign markets for the majority of sales. This calls for promotion of smooth international trade in commercial aircraft. The trade should be based on following policies:

### (1) Promotion of Free Trade

The commercial aircraft trade agreement has been established as part of the GATT Tokyo Round agreements for free world trade. This envisions international aircraft sales based on the principles of free trade.

The Japanese government has neither imposed restrictions on aircraft imports for protection of the domestic industry nor intervened in introduction of foreign aircraft. In some countries, governments have concluded so-called offset contracts with foreign nations under which domestically-produced components must be used for aircraft imported from abroad. This is not the case with Japan.

Promotion of free trade principles will contribute to development of the world's commercial aircraft industry. Therefore, Japan should strive to maintain and develop a free trade setup on the basis of the GATT agreement.

### (2) Dollar-based Export Financing Systems

Every country extends governmental export credits for commercial aircraft because they are frequently key terms in aircraft export deals. European nations as well as the United States have dollar-based public export financing systems since the world's aircraft trade is settled mainly in that currency. However, Japan maintains only yen-based financing systems.

In proceeding with international aircraft development programs, participating nations will furnish dollar-based export credits to aircraft purchasers according to the countries' aircraft production shares. If Japan has no dollar-based export financing systems corresponding to those of its joint development partners, smooth aircraft marketing will be affected to the disadvantage of Japan. Therefore, Japan should set up dollar-based export financing systems to cover its share in joint aircraft production with foreign partners. If foreign countries attach special incentives to export credits, Japan should take measures that would correspond with them.

### (3) Commercial Aircraft Import Financing Systems

Japanese airlines use aircraft-exporting countries' export financing systems to purchase of commercial aircraft titles - the government takes special measures to promote

imports. For export of aircraft developed jointly by Japan and foreign countries, however, the foreign partners are expected to let export financing systems cover only costs corresponding to their production shares. In that case, aircraft costs for the Japanese share would not be subject to the foreign partners' export financing systems. This would make Japanese airlines' purchase of jointly-developed aircraft disadvantageous to import of aircraft developed wholly by foreign countries. For Japan-participated international aircraft development programs, Japan should establish positive financing systems to cover Japan's development and production share.

### (3) Aircraft Industry and Defense

Every country sees the aircraft industry as an important part of the defense industry. Every government provides funds to the aircraft industry for development, production and research of military aircraft. Under these circumstances, military aircraft account for the greater part of sales of the aircraft industry. The Japanese aircraft industry's dependence on defense is especially high. In 1979, military aircraft captured as much as 86 percent of the aircraft industry's sales in Japan.

The government should further promote domestic production and research and development of Self-Defense Forces' aircraft to help upgrade the defense-oriented aircraft industry.

Although cost and performance requirements for commercial and military aircraft are different, development and production techniques are closely related. Therefore, research and development of commercial and military aircraft should be carried out in tandem.

CSO: 4120

ECONOMIC

AEROSPACE PRODUCTION TO DIP IN FY '80

Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 pp 1,2

(Text) Japan's aerospace industry production in FY 1980 started last April will decline slightly from FY 1979, although exports and order receipts will increase, according to a survey by the Society of Japanese Aerospace Companies (SJAC) covering 30 major aerospace firms.

The value for the current fiscal year is projected at ¥287,700 million, down 2.2 percent from ¥294,300 million in FY 1979. Of the total, aircraft account for ¥94,200 million, down 2.5 percent; engines ¥34,700 million, down 2.6 percent; parts ¥102,500 million, down 0.2 percent; and equipment ¥56,100 million, down 3.2 percent.

Exports during the year are expected to increase 62 percent from ¥13,900 million in FY 1979 to ¥22,500 million. The FY 1979 figure was almost the same as FY 1978. Aircraft exports are expected to increase 117 percent to ¥10,400 million and parts 40 percent to ¥11,500 million. However, equipment is projected to decline 36 percent to ¥600 million.

Orders to be placed with the Japanese aerospace industry in FY 1980 are expected to increase 75.5 percent to ¥519,900 million from ¥313,200 million in FY 1979. The FY 1979 figure represented a 13.5 percent drop from ¥362,300 million in FY 1978. In FY 1980, aircraft orders are projected to rise 187 percent over the previous year. Manufacture orders cover 264 aircraft and repair orders 402 aircraft. Engines are expected to increase 191.9 percent to ¥98,800 million. Engine orders comprise 170 units for manufacture and 985 units for repair. Equipment orders are seen rising 40.9 percent to ¥84,300 million, while parts are expected to drop 13 percent to ¥115,600 million.

ECONOMIC

NAL TO INCORPORATE ADVANCED TECHNOLOGY INTO STOL AIRCRAFT

Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 pp 2,3

[Text]

The National Aerospace Laboratory (NAL) has started fabrication of a control system for experimental fan jet STOL (short takeoff and landing) aircraft. NAL plans to incorporate in the plane the stable control augmentation system (SCAS), inertial navigation system, triple servo system, head-up display, fly-by-wire technique and other advanced technology. It has also begun research into head-down display and optical fiber transmission technology for future STOL aircraft.

The application of such advanced technology is a first in Japan. Great expectations are placed on the experimental STOL aircraft to display Japan's development of the advanced technology.

It will be very difficult for pilots to control STOL aircraft because the aircraft are designed to take off and land at very low speeds and they are also vulnerable to strong winds. To cope with these problems, a SCAS will be mounted on the experimental aircraft. This system has functions such as maintenance of speed, attitude control, automatic trimming, side slip control and flight route adjustment.

CSO: 4120

REPORT URGES PROMOTION OF AEROSPACE MACHINING TECHNOLOGY

Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 pp 3-5

[Text]

The Association of Mechanical Technology in its report on aerospace industry technology urges the local aerospace industry to promote research and development of machining technology.

According to the report, commissioned by the Japan Machinery Association, machining technology is especially important to the industry at a time when new aircraft materials are being developed to reduce weight and conserve fuel.

Research and development should include establishment of design processes, development of new materials, improving currently used materials, and improvement and development of machining technology. New machining technology and tools are necessary for integral structure, honeycomb structure, and utilization of composite and reinforced materials.

Regarding machine tools for airframe production, the industry is going ahead with promotion of numerical control (NC), rigidity, driving power, control systems, reliability and safety, chip ejection, bonding techniques, treatment of composite materials, diffusion and bonding techniques and technology for forming large components. Specifically, improvement of skin and spur millers and higher rigidity of multi-spindle NC machine tools are receiving priority.

In production of aero engines, the industry is handling establishment of cutting and grinding data banks, tool holders and machining equipment, and development of special machining processes. In order to improve engine assembling

processes, the industry is also studying ways to upgrade automation, and development of NC tools and assembly technology using no metallurgical tools.

The United States' machining technology for the aerospace industry is considerably advanced. CAD (computer aided design) and CAM (computer aided machine) are fully utilized for production of airframes. Computers are widely applied to all airframe production processes from planning through tooling and fabrication. New bonding techniques are being introduced to reduce weight along with machined skin. Numerical and adaptive controls are used for machining complex-shaped components.

Engine machining equipment in Japan is not inferior to that in the United States. However, the Americans are using metallurgical tools more efficiently than the Japanese. The tools are also adjusted to mass production. Research and development of machining technology in the US are far more advanced than in Japan. Development of new machining technology is being adapted to new engine materials. Taking the US technological development into consideration, the government should subsidize research and development in this field.

US machine tool manufacturers have close relations with aircraft companies so that tools are fully adapted to aircraft production processes. Japan should learn from this relationship. US aircraft manufacturers are also cooperating fully with subcontractors as in the Japanese automobile industry. There is a high possibility of Japanese machine tools being introduced to the US aircraft industry.

The association has selected specific research and development subjects especially for airframe production, including establishment of bonding technology, development of computerized NC layup tools, improvement of adaptive control systems, establishment of technology for cutting and grinding rigid materials, highly-accurate gear machining, spline machining technology (broach and alternative processes), large tool grinders and measurement systems, development of NC machine tools with measurement functions, techniques against heat deformation, development of general-purpose chucks, development of automatic assemblers, and measures against chips produced during cutting.

The association has made guidance specifications for adaptive control machine tools, automatic layup and other tools machining composite materials, and NC machine tools with measurement functions. It will study these specifications and measures against chips next year.

ECONOMIC

FIRM COMMITMENTS FOR MITSUBISHI MU 300 EXCEED 100

Tokyo IPE AVIATION REPORT-WEEKLY in English 1 Oct 80 p 5

[text]

Mitsubishi Heavy Industries Ltd. (MHI) and its Dallas-based American subsidiary Mitsubishi Aircraft International Inc. (MAI) had received firm commitments for 101 MU300 new business jets by the middle of September, MHI sources have revealed.

The MU300 is a turbofan successor to the MU2 turboprop, 65% of which were ordered as of the end of August. The MU2 which Mitsubishi began marketing 15 years ago is now selling at the rate of five to ten aircraft monthly.

At the end of August, MHI and MAI had received firm commitments for 94 MU300s. MAI sold another seven to American operators during the first half of September, increasing the orders to 101.

The MU300 is now in the final stage of its flight test program and is scheduled to be certified by the US FAA in early 1981.

CIO: 4120

ECONOMIC

## LICENSING CONTRACTS ON AIRBORNE EQUIPMENT

Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 pp 5,6

[Text]

\*F-15

Mitsubishi Precision Co. has reached agreement with SCL System, Inc. of Huntsville, Alabama on local production of integrated CNI control panels of the ASDF/McDonnell Douglas F-15J and -15DJ fighter aircraft under the second production contract to be funded this fiscal year. Mitsubishi Precision will begin preparations as soon as the agreement is approved by the Japanese government.

\*P-3C

Shimadzu Ltd. is negotiating with CAE Industries Ltd. on a licensing contract for local production of ASA-64A magnetic signal processing systems for ten MSDF/Lockheed P-3C antisubmarine aircraft which will be funded in FY '80. Shimadzu plans to sign a contract in October.

The company will also produce the Emerson Electric HO-32/ASQ magnetic recorders for the aircraft. It is producing the same equipment for the MSDF P-2J aircraft and only a modification to the present contract will be required, sources say.

Shimadzu already has licensing contracts with EPSCO Inc., Westwood, Ma., Garrett Corp. and CAE Industries Ltd. on local production of signal converters, airspeed instruments and automatic magnetic compensation systems respectively for the first MSDF P-3Cs funded in FY '78.

CSO: 4120

FOKKER PUSHING JAPANESE ON F-29

Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 pp 1, 2

[Text]

Chairman F. Swarttouw, F-29 Project Manager J. Cornelis, and two other senior executives of Fokker Aircraft Co. were in Tokyo toward the end of September, to contact top leaders of the Japanese aircraft industry and the Ministry of International Trade and Industry (MITI).

Swarttouw and his party met top executives of Japanese aircraft manufacturers --- Kenji Ikeda of MHI, Teruaki Yamada of KHI, Iwao Shibuya of FHI and Eiichi Yamaguchi and Kenji Ichino of the Civil Transport Development Corp. (CTDC) in Tokyo Sept. 24 and reportedly proposed that a new medium size passenger aircraft, coded here as the Y-XX, be developed and produced by Fokker, Boeing and the Japanese industry on an equal basis. Fokker has also proposed development of the aircraft begin in the middle of 1981 so that production can start in 1987 - 88, the report said. Fokker apparently explained details of the proposal and questions and answers were given on precise issues as the meeting lasted for five hours.

Swarttouw and the other Fokker executives were in Seattle, Washington, in the middle of September, for discussions with Boeing officials prior to visiting Tokyo.

The Fokker leaders met Minister Rokusuke Tanaka, Director-General of Machinery and Information Industry Bureau; Shigeru Kurihara and Director of Aircraft and Ordnance section Yoshitomo Nakamoto at MITI Sept. 25 and briefed them on Fokker's proposal and requested Japan to give a positive response. This was the first time for Swarttouw to meet Tanaka after inauguration of the Suzuki Cabinet in July.

Although details of the discussions between the MITI officials and the visiting Fokker executives are unknown, the Japanese officials reportedly refrained from making any positive commitments. Tanaka told Swarttouw that the Japanese industry and the government were also in contact with Airbus Industrie and Boeing Commercial Airplane Co. in connection with joint development of the Y-XX, and that the Japanese want to study details of their respective plans as well as Fokker's proposal, and that Japan is still open for further discussions, one source said. After the meeting with Tanaka, Swarttouw and his party continued discussions with Kurthorn and Sakamoto at MITI behind closed doors.

Swarttouw and his party told the Japanese industry and government leaders that Fokker is also in contact with Airbus Industrie on new aircraft development, but that talks with Airbus were not progressing as well as those with Boeing, according to Japanese industry sources.

When Japanese industry leaders visited Seattle in August, they met high-level officials of Boeing and discussed with them various joint development possibilities acceptable to both sides, local industry sources say. How Boeing will respond to Fokker's proposal made during their meeting in Seattle in the middle of September may be interesting to the Japanese.

CSO: 4120

## ECONOMIC

### R&D SUBJECTS FOR SJAC TECHNICAL CENTER

Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 pp 3,4

#### [Text]

The Planning Committee of the Advanced Aircraft Technology Development Center, Society of Japanese Aerospace Companies (SJAC), has drafted recommendations on the center's survey of foreign advanced aircraft technology, a long-term plan for research and development of advanced aircraft technology, and research and development plans for FY 1980 (April 1980-March 1981).

The committee, headed by Hiroshi Nakaguchi, was asked to prepare recommendations on the three subjects and commission research and development for FY 1980 by Prof. H. Kimura, director of the center. A report on the last subject will be submitted later.

A gist of the report follows:

#### 1. Foreign Advanced Aircraft Technology Survey

The center will commission appropriate institutes to survey research and development of airframes, powerplants and control systems in the United States and Europe, including Britain, West Germany, France, Italy and the Netherlands.

#### 2. Long-term plan for R&D of Advanced Aircraft Technology

Considering future aircraft requirements, R&D activities in Japan and the world, and promising R&D projects, the committee selected 77 R&D subjects--15 on improvement of efficiency in navigational systems, 16 on increased safety, 16 on energy conservation and 10 pertaining to environmental issues:

**Improvement of efficiency in navigational systems:**  
Marketing, product support, production control, basic planning technology, rationalization of design, development tests, increased airport efficiency, new systems for new aircraft, radio navigation systems, helicopter blades, powered high lift devices, vertical takeoff and landing, analysis of large structures, electronic fuel controls, and intensive electronic navigation controls.

**Improvement of air traffic safety:** Reliable maintenance, adjustment of maintenance processes to systems design, more data concerning air traffic and environmental requirements, wind shear and vortex detection systems, direct lift control, non-destructive testing, damage-covering design processes, strengthened aluminum alloys and processing, engine surveillance systems, engine integration technology, fly-by-wire systems, automatic and microwave landing systems, flight stability systems for helicopters, air bearing, anti-collision systems, and integration of display systems.

**Energy conservation and alternative energy sources:**  
Improvement of simulators, basic plans for more fuel-efficient aircraft, transonic wings, reduction of interference in wings and fuselages, wing tips, variable geometry wings, long nacelle, boundary layer suction, stability relaxation, operational load control, gust-load control, flutter control, mechanical high lift device bonding structures, integral structures, composite materials and their processing, reinforced plastic processing, high speed propellers, variable pitch fans, core engines, reducing weight, heat reproduction systems, hydrogen fuel aero engines, heat-resisting materials, composite materials, electric power packs, light power distributors, variance power-by-wire systems, high-pressure hydraulic devices, energy saving navigational systems, accurate navigation and automatic navigation systems, etc.

**Environmental issues:** Basic plans, quieter navigational systems, anti-air pollution measures, reduction of internal noise, sonic inlet, jet noise suppressors, noise absorbing aircraft, low-noise fans, low-emission combustors, etc.

3. R&D subjects for FY 1980 are divided into three.

(1) Airframe structure: Helicopter blades made of composite materials, fiber-reinforced metal materials,

processing of composite materials, machining of light integral structures, grinding of wide and long fuselage, development of strengthened aluminum alloys, and composite material-made rigid wing structures.

(2) Powerplant: High-temperature and high-load turbines, engine combustors producing less nitrogen oxide, high-speed propellers with variable pitch structures, and hydrogen fuel burning engines.

(3) Control systems: New automatic control systems, optical fiber data processing systems, new navigational systems, and new cockpit display devices.

CSO: 4120

ECONOMIC

VACUUM FURNACE ORDER INCREASING AIRCRAFT INDUSTRY SALES

Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 pp 5-6

[Text]

ULVAC (ultra vacuum) Corp., Japan's top vacuum equipment manufacturer, has received orders from Mitsubishi Heavy Industries (MHI) and Metal Technique Co. (MTC) for large vacuum heat treatment furnaces for treating aircraft materials, launching participation by Japan's aircraft industry.

The furnaces are designed to treat heat resistant alloys for jet and rocket engine parts to be used at high temperatures and under high pressures.

The ¥300 million furnace for MHT's Nagoya Aircraft Works is one of the world's biggest. It has a two-meter-diameter, two-meter-high heating room with a maximum treatment capacity of 1,500 kilograms, two times greater than so-far manufactured equipment. The vertical, two-room and gas-cooling vacuum furnace consists of a cooling room, a heating room, a cylinder for positioning materials, pumps and other components. Its height is about 17 meters and its floor space cover about 200 square meters. In the furnace, pressure can be reduced to one-100 millionth of one atmosphere and temperature can be boosted to 1,300 degrees centigrade.

The vacuum furnace for MTC's Gunma heat treatment works has a 1.2-meter-long, 1.8-meter-wide and 0.8-meter-high heating room and can handle 1,000 kilograms. Its maximum temperature and minimum pressure are the same as the MHI furnace.

Vacuum heat treatment can boost metallic materials' heat resistance and durability. It can be applied to special metals such as titanium, aluminum and cobalt. It is also

used on a wide range of heat treatment processes, including quenching, tempering, brazing and sintering, according to material.

Japan's vacuum heat treatment demand is estimated at \$10,000 million a year. The big market is shared by Mitsubishi Materials Heavy Industries (MHI), Hayes Japan and UVA.

Although automakers and electric appliance producers account for the greater part of the demand at present, demand from aircraft manufacturers is expected to increase due to stepped-up aircraft production, including Boeing 767s, F/A-18 fighters and MHI's MU-300 business jets.

MTC, engaged in heat treatment of metals, has obtained quality standards for heat treatment of aircraft parts from Boeing and Rolls-Royce.

ISO: 4120

ECONOMIC

**MATSUURA MACHINERY DEVELOPS NEW MC FOR AIRCRAFT MANUFACTURE**

Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 p 6

[Text]

Matsuura Machinery Corp., a machine tool manufacturer based in Fukui, north central Japan, has developed an improved machining center, named the MC-1000V, for aircraft manufacture based on two MCs delivered to Rolls-Royce last July for machining main jet engine parts.

It will produce 10 units per month while promoting sales to aircraft manufacturers.

The two vertical MCs delivered to Rolls-Royce will be used to machine main parts of the fuel-efficient RB211 engines for new generation wide-body aircraft, which will become operational next spring. Although Rolls-Royce rarely introduces Japanese MCs, Matsuura Machinery said the British engine manufacturer apparently values the accuracy and reliability of another Matsuura MC delivered in 1978.

The order from Rolls-Royce has prompted Matsuura Machinery to step up production of MCs for aircraft manufacture.

The new MC-1000V features easy maintenance, accuracy and stability. Specifications follow:

Table machining area: 500mm X 1,500mm

XYZ-direction movements: 1,050mm X 510mm X 560mm

Number of tools: 30

spindle speed: 3,580 cycles per minute

spindle motor: 1011 kilowatts

Weight: 6,800 kilograms (except control systems)

BRIEFS

NEXT AIR SHOW--The Society of Japanese Aerospace Companies (SJAC) decided at its board meeting last week that the next Japan International Aerospace Show will be held at Iruma Air Base near Tokyo in October 1981, pending final approval by the Defense Agency. The board has also decided to participate in the 1981 Paris Air Show. A group exhibition and a joint SJAC chalet as were the case with the '79 show are being suggested. Details will be studied at working-level meetings. As for possible participation in the Singapore air show slated for September 1981, SJAC will encourage individual participation but is not considering group participation, sources say. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 p 2]

CSO: 4120

MILITARY

MSDF ORDERS FIVE FY 1980 FUNDED WARSHIPS

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Sep 80 p 6

(Text)

The Maritime Self-Defense Force (MSDF) awarded contracts in the middle of September for construction of five new warships under the FY 1980 defense budget, including two 2,900-ton DDs, one 1,400-ton DE, one 2,200-ton submarine, and two mine-sweepers.

The 2,900-ton DD type destroyer will be armed with up-to-date missile systems and other advanced equipment. It will be powered by the Rolls-Royce/KHI TM3B Olympus and the RMIC type gasturbine engines, which KHI will produce under license. The 1,400-ton DE escort frigate will be powered by the Olympus gasturbine engine for highspeed operations and the MHI-designed 6DRV diesel engine for cruising. The first Harpoon SSM-armed submarine will be built by MHI, powered by KHI's VBV diesel engine. Japan Steel and Hitachi will each construct one mine-sweeper, both of which will be powered by MHI's 127C diesel engine.

CSO: 4120

MILITARY

**BRITISH NAVAL ENGINE EQUIPMENT FOR MSDF**

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Sep 80 pp 6-7

(Text)

SSS Gears Ltd., of London will appoint Chuoetsu Waukesha Co., Ltd., of Tokyo its representative in Japan for the sales and services of its synchro self-shifting (SSS) clutches to the Maritime Self-Defense Force (MSDF). A formal contract will be signed very soon, the Japanese company revealed last week.

SSS clutches are in use with leading navies of the Western world as power transmitting components of Rolls-Royce marine gas turbine engines. The same SSS clutches will be adopted for the Marine Olympus and the Tyne engines now being produced for new MSDF warships by Kawasaki Heavy Industries Ltd. under license from Rolls-Royce Limited. Chuoetsu estimates the sales of the SSS clutches to the MSDF in the initial year will amount to approximately ¥200 million.

Chuoetsu is negotiating with SSS Gears to expand its sales territories to Southeast Asia in addition to Japan. It also wants to sell the clutches for industrial gas turbines.

CSO: 4120

MILITARY

GSDF TO INTRODUCE 203MM HSP IN FY 1981

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Sep 80 p 7

(Text)

Beginning in FY 1981, the Ground Self-Defense Force (GSDF) plans to start a procurement program for the US Army M110A2 self-propelled 203mm howitzer for service introduction, replacing 155mm and 203mm howitzers. A contract valued at \$2,073 million will be concluded in FY 1981 for the first seven howitzers for the GSDF training unit.

The GSDF plans to obtain the M110A2 HSP through license production from the outset and four Japanese manufacturers --Japan Steel, MHI, Komatsu, and Hitachi--have completed preparatory studies in the US for local production. Latest indications are that the gun barrel will not be approved by the US Army for local manufacture. The engine is easily available in the American market and should not require licensing, industry sources say.

Under the circumstances, it is likely that the barrel and the engine for the first seven M110A2 howitzers will be imported, the former through a foreign military sales (FMS) contract.

For local production, Japan Steel will be designated the barrel-linked equipment manufacturer while the chassis will be ordered from MHI, Komatsu, and Hitachi.

CSO: 4120

MILITARY

FY 1981 E-2C PROGRAM TO TOTAL ¥63 BILLION

Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 p 7

[Text]

In addition to procurement of four Grumman E-2C early warning aircraft totaling ¥49,825 million, the ASDF has requested ¥13,800 million for procurement of related equipment through the FMS channel in the FY 1981 defense budget draft. The equipment is scheduled to be delivered in FY '83. The aircraft and related equipment requested in the budget draft for the next fiscal year will total almost ¥63 billion.

Approximately ¥2,087 million was founded in FY '79 for procurement of initial training equipment and training of programmers and maintenance personnel in the US. The equipment will be used for training Japanese air force personnel in the US during the period, FY '80 through FY '82 and then will be shipped to Japan for installation at ASDF facilities. Another ¥11,640 million is included in the current fiscal year budget for similar purposes.

In addition, the ASDF plans to place a ¥300 million order with Japanese suppliers for maintenance and stocked items of local manufacture in FY '82 for supporting the four aircraft to be funded in FY '81.

Including four E-2Cs already ordered, the ASDF will have eight Grumman aircraft in its operational inventory by FY '85.

CSO: A120

MILITARY

C-130H TRANSPORT PROCUREMENT, DEPLOYMENT PLANS

Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 pp 6,7

[Text] The ASDF has requested approximately ¥41,400 million in the FY 1981 defense budget draft for procurement of six Lockheed C-130H transports including parts and supporting equipment. Detailed figures related to the procurement plan follow:

Flyway costs of six aircraft -- ¥29,100 million (¥4,850 million per aircraft), initial spare parts -- ¥5,500 million, spare engines and propellers -- ¥700 million, ground support equipment -- ¥2,000 million, cargo handling equipment -- ¥100 million, training support equipment -- ¥2,600 million, and other miscellaneous expenses -- ¥1,400 million. (All figures are approximate.)

The ASDF plans to issue a contract in FY 1981 for the six aircraft through the government-to-government foreign military sales (FMS) channel pending approval of the budget request by the Diet (parliament). The first two aircraft will be delivered in FY '83 and the remaining four in FY '84, according to present ASDF planning.

A second contract for an additional six aircraft is being planned for FY 1983.

In peace time operations, the aircraft will be used for various ASDF air transport missions as well as supporting the Ground Self-Defense Force (GSDF) in airborne missions. Deployment of the C-130 is expected to considerably increase efficiency in airborne operations. The conventional C-1 can carry only light firearms such as the 106mm mobile recoilless rifle and the 105mm towed howitzer, while the C-130 will be able to transport heavy equipment such as the 203mm howitzer.

Iruma base near Tokyo is presently considered the likely home for the first Japanese Hercules transport squadron.

MILITARY

FIXED WING ASW AIRCRAFT TO BE STANDARDIZED WITH P-3C

Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 p 8

[Text]

In accordance with the decision by the Maritime Self-Defense Force (MSDF) and the Japanese Defense Agency (JDA) to terminate further procurement of the Shin Meiwa PS-1 antiair submarine flyingboat, the MSDF is reportedly studying possibilities to eventually standardize all land-based antisub fixed-wing aircraft with the Lockheed P-3C and its derivatives, sources say.

At present, the MSDF has 10 land-based fixed-wing aircraft squadrons using P-2Js and the S2F-1s, one PS-1 flyingboat squadron and five HSS-2A/B helicopter squadrons in its antisubmarine air force.

The present P-3C program which started in FY '77 will end in FY '87 with delivery of 45 aircraft to the MSDF. It plans to procure an additional 35 to 45 P-3Cs or improved versions of the Lockheed design to replace P2V-7/P-2Js and S-2F-1s over four to five years, starting in FY '88.

The P-3C (or its derivative) may also be considered as the likely replacement for the Shin Meiwa PS-1 which will begin to be phased out around that time. If so, the MSDF will eventually have 100 or more P-3Cs, comprising 11 squadrons, sources say.

Some have suggested procurement of the S-3A class fixed-wing aircraft to replace the S-2F-1 but a majority is in favor of increasing the P-3C on grounds that the S-3A is basically designed for carrier operations, and that it would be better for the MSDF to standardize equipment from maintenance and operational considerations, they say.

CSO: 4120

MILITARY

ASDF TO USE C-1 TRANSPORT FOR ECM TRAINING

Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 pp 7-8

[Text]

The Air Self-Defense Force (ASDF) plans to use a C-1 transport for electronic countermeasure (ECM) training. It has incorporated funds for modifying a C-1 into the budget request for FY 1981 starting in April 1981.

This C-1 will be equipped with the XJ/ALQ-5 ECM system for ECM training against ground control radar systems and surface-to-air missile guidance.

The XJ/ALQ-5 ECM system, now being developed by Mitsubishi Electric Corp., will be delivered to Kawasaki Heavy Industries (KHI) by the third quarter of FY 1982.

KHI will perform the modification. It is to conclude a ¥190 million contract with the Technical R&D Institute of the Defense Agency by the end of this year for basic design of a modified C-1.

The firm will deal with detailed design in FY 1981 after basic design in late FY 1980. From the latter half of FY 1981, it will manufacture required metallurgical tools and modified C-1 parts. Modification will be carried out in the third and fourth quarters of FY 1982. After flight tests, a modified C-1 will be delivered to ASDF in the second quarter of FY 1983. ASDF will conduct technical tests in FY 1984 and put it into operation in FY 1985.

As of October 1980, ASDF will have 31 C-1s, of which two will be modified for a flying test bed and the ECM aircraft.

Of the 29 transport-type C-1s, ASDF will use 24 for actual operation and five for reserve.

MILITARY

GSDF PLANNING TO IMPORT GUIDED PROJECTILES IN FY '81

Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 p 8

[Text]

In line with a Ground Self-Defense Force plan to evaluate guided projectiles for the 155mm gun, the Defense Agency has included necessary funds in the FY 1981 defense budget request draft submitted to the Ministry of Finance, sources say.

The GSDF wants to import, for evaluation purposes, 155mm cannon launched guided projectiles developed by the US Army and Martin Marietta Aerospace Corp. The US Army has basically agreed to the release of this projectile to Japan, local sources say.

According to present GSDF planning, samples of the projectile will be imported with funds authorized in the FY 1981 defense budget and tests will continue until FY 1985. It plans to place the new ammunition in service in or after FY 1985.

The new firearm the GSDF has in mind consists of a laser firing system and the guided projectile which will be fired by either the conventional 155mm howitzer or a future 155mm self-propelled howitzer, one report says.

The Technical R&D Institute, JDA, started basic studies on the guided projectile for the 155mm howitzer but stopped because of precision guidance and operational problems, it added.

CSO: 4120

MILITARY

BRIEFS

F-15 FLIGHT TESTS--The Air Self-Defense Force (ASDF) F-15 technical evaluation group headed by Col Yuzo Otsubo began flight testing in early October one of the first two aircraft Japan received from McDonnell Douglas in July. The aircraft remained at St Louis, Mo. for continued company testing after delivery. Aircraft No 1 will be flown to Whiteman Air Force Base in early October for flight testing. The first test is scheduled to be data-linking with equipment installed at St Louis. The flight tests will continue until the middle of the month. Aircraft No 2 will continue to remain in St Louis for the time being and performance and weapons delivery tests using this aircraft are scheduled to begin at Edwards AFB in the latter part of October. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 pp 7,8]

STEADY TEAM TO U.S.--The ASDF plans to send officials to the U.S. in early FY 1981 to study the Air Combat Maneuvering Range-Instrumentation (ACMR-I) systems being used by the U.S. Air Force, Navy and Marine Corps for training pilots in air combat, sources report. This is one of the training improvement program the ASDF will promote next fiscal year. The others include a general exercise of the entire ASDF units, an annual firing exercise of ASDF Nike missile units in the U.S. and upgrading of training control functions over the airspace of the Northern and Western commands, they say. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 1 Oct 80 pp 7,8]

CSN: 4120

## SCIENCE AND TECHNOLOGY

### SCIENCE, TECHNOLOGY AGENCY ANNOUNCES JFY 1981 BUDGET

Tokyo KACAKU SHIMBUN in Japanese 5 Sep 80 p 1

[Text] New Item, "Creative Science and Technology"

The Science and Technology Agency [STA] compiled and announced the estimated budget requests for the next fiscal year (JFY 1981). The budget requests amount to 321.061 billion yen for general account and 62.284 billion yen for special account to promote development of electric power sources, for a total of 383.345 billion yen for the STA. As compared with the 337.755 billion yen for the previous year (JFY 1980), this is an increase of 13.5 percent. Noteworthy items in next year's budget are R&D of earth resources technology satellite No 1 in the space development program (1.153 billion yen), development of H-I rockets (3.006 billion yen), construction of gene-recombination research facility (P4 level) in the field of life sciences (236 million yen), etc. Also, a new item called "promotion of creative S&T" has been established and the first year's request is 1.07 billion yen. A breakdown of the estimated budget requests (general account) is given below (figures given in units of 1 million yen; figures in parentheses are for JFY 1980 budget).

Includes Facility for Gene-Recombination

Promotion of R&D and Uses of Atomic Energy: Total of 184,942 (167,354), including (1) administration of atomic energy safety regulations and environmental safety measures, 2,518 (2,112)--Atomic Energy Safety Committee, 319; preventive measures against radiation hazards, 112; measures to dispose of radioactive wastes, 292; research on radiation measurements, 1,113; security measures, and protective measures against nuclear materials, 559; (2) Power Reactor and Nuclear Fuel Development Corporation, 81,807 (81,465)--development of power reactor, 45,611 (of which, 21,532 for development of fast breeder reactor and 2,149 for development of new-type converter); overseas survey and drilling for uranium ores, 6,012; development of uranium enrichment technology, 18,571; (3) Japan Atomic Energy Research Institute, 84,046 (69,544)--research on safety features, 8,839; R&D of nuclear fusion, 39,178 (of which, 30,585 for construction of JT-60 and 4,481 for Japan-U.S. nuclear fusion cooperation); research on multi-purpose high-temperature gas reactor, 5,410; (4) Japan Nuclear Ship Development Agency, 7,196 (6,451)--repair,

overhaul and construction of new homeport of nuclear ship "Mutsu", 4,020; (5) National Institute of Radiological Sciences, 5,498 (4,475)--construction of laboratory wing for nuclear exposure tests, 1,762; research on influences of low-level radiation, 360; (6) experiments and research of national experimental and research organs, 1,912 (1,634); (7) atomic research at the Institute of Physical and Chemical Research, 1,094 (911); (8) Others, 871 (762)--Japan Atomic Energy Commission, 164; contracts for research on peaceful uses of atomic energy, 180.

Promotion of Space Development: Total of 88,253 (85,097), including (1) National Space Development Agency, 86,883 (83,727)--development of communications satellite No 2, 5,281; development of broadcast satellite No 2, 3,191; development of geostationary meteorological satellite No 2, 10,778; development of ocean observation satellite No 1, 7,088; R&D of earth resources technology satellite No 1, 1,153; development of H-I rockets, 3,006; trial manufacture and tests to evaluate reliability of upper-stage rockets, 606; reception and disposition of earth observation information, 1,607; (2) space R&D by National Aerospace Laboratory, 821 (833); (3) Others, 549 (537)--Space Activities Commission, 45; financial aid to enterprises assisting fishery of Tanegashima and vicinity, 426.

Promotion of Ocean Development: Total of 7,668 (4,749), including (1) Center for Marine Science and Technology, 7,414 (4,531)--completion and operation of underwater survey ship, 4,596; R&D of underwater operations technology, 396; basic designing of ocean operations experimental ship, 45; R&D of wave activated power generation system, 48; R&D of ocean area control technology and new marine observation system, 146; R&D of technology of deep sea probes through telemetering, 32; (2) other ocean development projects, 254 (218)--survey and research of developing and using the Kuroshio current, 126; [R&D of technology of deep sea probes through telemetering, 110].

#### 1.5 Billion Yen for Earthquake Forecasting

Promotion of Disaster Prevention Science and Technology. Total of 2,712 (2,329), including (1) National Research Center for Disaster Prevention, 2,642 (2,296)--earthquake forecasting, 1,550; measures to cope with earthquake disasters, 173; measures to cope with snow damages, 68; (2) others, 70 (33)--research on earthquake forecasting at Center of Marine Science and Technology, 40 (same).

Promotion of Creative Science and Technology: 1,070 (new).

Promotion of Important Consolidated Research, Etc.: Total of 26,986 (22,297), including (1) promotion of life sciences, 1,096 (945)--promotion of life sciences at Institute of Physical and Chemical Research, 1088 (of which, 236 for construction of gene-recombination research facility); (2) research on aeronautical technology at National Aerospace Laboratory, 8,006 (5,215)--R&D of fan-jet STOL experimental aircraft, 4,491; (3) research on subjects, other than atomic energy and life sciences, at

Institute of Physical and Chemical Research, 6,772 (6,587)--R&D of lasers, 126; (4) promotion of R&D of material technology, 5,581 (4,927)--material research at National Research Institute for Metals, 3,718; material research at National Institute of Research in Inorganic Materials, 1,863; (5) promotion of specified consolidated research, 1,750 (1,550)--special survey expenses, 1,350; appropriations to operational organs such as Institute of Physical and Chemical Research, 400 (same); (6) promotion of measures for coordinated uses of natural resources, 435 (326)--contract for corroborative tests of regional energy sources, 102; contract for testing effective uses of gas from waste disposal, 11; natural resources survey stations, 258; contract for drafting food ingredients charts, 32; (7) promotion of commercializing new technologies and transferring technology, 1,346 (2,747)--new technology groups, 3,331 (including same amount, 50, for atomic energy).

Consolidating Basis for Promoting Science and Technology: Total of 5,131 (4,611), including (1) strengthening foundation for R&D, such as formulating basic plans for S&T, 458 (414)--formulation of basic S&T plans, 66; domestic and overseas training of government researchers, 392 (including same amount, 10), for atomic energy and space); (2) promotion of research interchange activities at Tsukuba university town, 63 (56); (3) promotion of dissemination of S&T information, 4,345 (3,903)--Japan Information Center of Science and Technology, 4,319 (of which, 1091 for on-line information retrieval service and 2,628 to expand data base); (4) promotion of S&T informational and educational activities, 265 (238)--general public information and education, 126 (of which, 27 for assisting science club activities); atomic energy development, utilization, diffusion and education, 131 (same); space development, diffusion and education, 8 (same).

Sponsorship of International Science and Technology Exhibition: 807 (115)--promotion of enterprises related to government exhibitions, 343; assistance to International Science and Technology Exhibition Association, 435.

Promotion of international cooperation: Total of 5,418 (4,230), including (1) promotion of cooperation with advanced countries, 303 (251)--participation in OECD-SEA joint enterprises, 144 (same); Japan-PRC S&T cooperation, 71; (2) promotion of Japan-U.S. S&T cooperation, 5,002 (3,880)--energy field, 4,422 (of which, 6,426 for nuclear fusion, appropriated again from nuclear energy); 421 for phot-synthesis, appropriated again from Institute of Physical and Chemical Research), etc.

115  
100- 81-00000

## SCIENCE AND TECHNOLOGY

### RESEARCH, DEVELOPMENT PROJECTS ON ELECTRONIC EQUIPMENT IN FY 1981

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Sep 80 pp 7-8

[Text]

The Technical R&D Institute (TRDI) of the Defense Agency has requested ¥7,700 million in the FY 1981 defense draft budget for R&D projects on electronic equipment.

Technical development projects include second phase work for the electronic communications exchange system for the GSDF's five regional commands (¥490 million); new radio equipment for field use by the GSDF (¥540 million); a new mortar-locating radar system for the GSDF (¥900 million); a new battlefield surveillance radar system (¥270 million); an electronic jamming system for MSDF surface vessels (¥1,360 million); an inertial navigation system for MSDF submarines (¥330 million); and three airborne ECM systems for the Air Self-Defense Force (ASDF) --- XJ/ALE-1 (¥420 million), XJ/ALE-5 (¥1,250 million), and XJ/ALE-8 (¥470 million).

Experimental fabrication will be made for a liquid fuel laser device (¥80 million); an infrared sensor (¥200 million); ultra low frequency signal processing systems (¥190 million); and an antenna for future fire control systems (¥170 million).

In addition basic designing for installation of the XJ/ALE-8 ECM system will be contracted to a commercial firm.

CSO: 4120

## SCIENCE AND TECHNOLOGY

### HITACHI TO BUILD EXPERIMENTAL FRP BOAT

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Sep 80 p 8

[Text]

Hitachi Shipbuilding & Engineering Co. was recently awarded an ¥508.7 million contract by the Defense Agency to build an experimental forced resin plastic hull. The 25m long hull for a 200-ton FRP boat will be delivered by the end of March 1981. A further ¥370 million is on request in the FY 1981 defense budget draft for installation of mine-sweeping equipment and systems for operational tests by the NSDF.

Construction of new mine-sweepers built with FRP material has been contemplated by the NSDF first to cope with cost increases in wood. But, it is mainly intended to meet advances in mine-sweeping equipment and systems for varied missions, including deep-sea clearing.

Based on tests with the experimental FRP craft, which will be completed in FY 1982-83, the NSDF will finalize a plan for new FRP mine-sweeper construction program for FY 1984 and beyond.

The new FRP mine-sweepers are expected to be larger than the wooden 500-ton boats currently in service.

CSO: 4120

## SCIENCE AND TECHNOLOGY

### NEC SUCCEEDS IN PICTURING SEASAT SAR DATA

Tokyo JPE AVIATION REPORT-WEEKLY In English 1 Oct 80 p 9

[Text]

Nippon Electric Co. (NEC) has succeeded in picturing radar reflection signals from the synthetic aperture radar (SAR) of the SEASAT, an ocean survey satellite of the United States, through a large computer's digital process for the first time in Japan.

The successful effort utilized basic SAR technology developed by the company, paving the way for domestic production of a SAR system to be mounted on Japan's earth resources satellites, NEC said.

The SAR is a remote sensing radar. It can observe the surface through clouds or at night as microwaves with longer wavelengths are used. This performance could not be achieved by optical sensors mounted on the LANDSAT and other earth observation satellites.

The SAR, mounted on SEASAT for the first time, collected data from the earth from June to October 1978. The data pictured by NEC are from the Alps, Lake Leman and Geneva. They were received by a British ground station from the SEASAT.

NEC is the world's first private company to develop SAR data picturing software on its own in only three months. The success is attributed to NEC's technology covering digital signal processing, satellites, radar and data transmission, all of which are necessary for picturing the data. The successful software development has removed a technical barrier against Japan's domestic SAR production, NEC says.

CSO: 4120

## SCIENCE AND TECHNOLOGY

### JDA/MITI PREPARING FOR START OF MT-X DEVELOPMENT

Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 pp 8-9

[Text]

The JDA will push for the start of the MT-X new medium jet trainer development program in FY 1981 through final negotiations with the Ministry of Finance (MOF), which will continue until the end of December when the national budget request for the next fiscal year will be approved by the Cabinet.

Request totaling ¥2,398 million including ¥1,903 million as follow-on disbursement over two years are included in the FY 1981 defense budget draft submitted to the MOF at the end of August. The MT-X will be designed to initially replace the aging Lockheed T-33 and the Fuji T-1 trainer aircraft. It will later be used to take over some of the missions now being performed by the Mitsubishi T-2 supersonic trainer, according to ASDF sources.

In parallel with the moves of JDA, the Ministry of International Trade and Industry (MITI) will begin preparatory work concerning development and production of the MT-X program including selection of a prime contractor. Mitsubishi, Kawasaki and Fuji heavy industrial firms have respectively expressed desires to take the lead in development and subsequent production of the aircraft.

The MT-X will be subject to Japan's Aircraft Production Law and MITI will be administratively responsible for selection of the prime contractor. After the FY 1981 budget request is approved by the Cabinet, it will hear proposals from the three companies as well as such other manufacturers as Shin Meiwa and NIPPI (Japan Aircraft Manufacturing Co.) and also seek advice from the ASDF and the JDA. A higher-level political decision may be required in selection of the MT-X prime contractor since all the three heavy industry

companions have capabilities in taking leadership in development and production of the aircraft, industry sources say.

According to present ASDF planning, the MT-X will have a maximum speed of 900 kilometer at sea level, a maximum ceiling of more than 12,000 meters and a range of over 1,200 kilometer. The rate of climb at sea level will be approximately 3,000 m/min. Take-off runs will require about 800 m and landings about 750 m.

CSO: 4120

SCIENCE AND TECHNOLOGY

TR&DI TO FABRICATE PRECISION GUIDED SIMULATOR IN FY'81

Tokyo JPE AVIATION REPORT-WEEKLY in English 8 Oct 80 pp 9-10

[Text]

The Technical R&D Institute (TR&DI) will fabricate a new precision guided simulator in FY 1981 to assist in developing eight new guided weapons expected in FY 1982 and after.

The TR&DI has so far developed the Model 64 MAT, Ju-MAT, ASM-1, short-range SAM guided missiles which are being covered by the existing missile simulator at its Third R&D Center for radar homing missiles. However, new guided weapons are planned to have not only radar homing systems but also IR-CCD image homing and other advanced guidance systems. The new simulator is designed to evaluate and support these new guided weapons.

The institute is believed to have earmarked about ¥900 million for fabrication of the new simulator in the Defense Agency's budget request for FY 1981. The fabrication started in the current fiscal year, though funds have been cut by about 50 percent from the requested level. The request for FY 1981 will not be rejected, according to informed sources.

The eight new guided weapons subject to research and development are included in the FY 1981 budget request. Indications are that these weapons would become items for technical development in FY 1982 and after.

CSO: 4120

END

**END OF**

**FICHE**

**DATE FILMED**

October 31, 1980

D.S.